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Term	Documents
LIQUID	1928043
LIQ	311323
LIQS	11263
LIQUIDS	236483
CRYSTAL$	0
CRYSTAL	692175
CRYSTALA	6
CRYSTALAB	5
CRYSTALAB-INC	1
CRYSTALAC	2
CRYSTALAG	1
(L2 AND LIQUID CRYSTAL$).USPT,JPAB,EPAB,DWPI,TDBD.	14

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Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

10/638,057

Search: L3

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Search History

DATE: Tuesday, December 02, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
L3	L2 and liquid crystal$	14	L3
L2	ester with lactone.clm.	832	L2
L1	us-5653913-$.did.	2	L1

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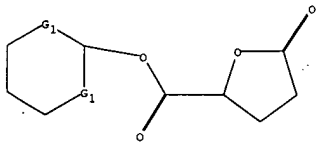
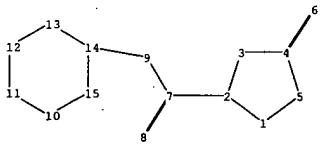




chain nodes :
6 7 8 9
ring nodes :
1 2 3 4 5 10 11 12 13 14 15
chain bonds :
2-7 4-6 7-8 7-9 9-14
ring bonds :
1-2 1-5 2-3 3-4 4-5 10-11 10-15 11-12 12-13 13-14 14-15
exact/norm bonds :
1-2 1-5 2-3 2-7 3-4 4-5 4-6 7-8 7-9 9-14 10-11 10-15 11-12 12-13 13-14
14-15
isolated ring systems :
containing 1 :

G1:C,N

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom

RN 145920-89-4 REGISTRY
CN 2-Furancarboxylic acid, tetrahydro-5-oxo-, 4-(4-pentylcyclohexyl)phenyl ester, [1(S)-trans]-, mixt. with 2-[4-(decyloxy)phenyl]-5-octylpyrimidine, 5-heptyl-2-[4-(heptyloxy)phenyl]pyrimidine, 5-heptyl-2-[4-(nonyloxy)phenyl]pyrimidine, 5-heptyl-2-[4-(octyloxy)phenyl]pyrimidine, 2-[4-(hexyloxy)phenyl]-5-nonylpyrimidine and 5-octyl-2-[4-(octyloxy)phenyl]pyrimidine (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Pyrimidine, 2-[4-(decyloxy)phenyl]-5-octyl-, mixt. contg. (9CI)
CN Pyrimidine, 2-[4-(hexyloxy)phenyl]-5-nonyl-, mixt. contg. (9CI)
CN Pyrimidine, 5-heptyl-2-[4-(heptyloxy)phenyl]-, mixt. contg. (9CI)
CN Pyrimidine, 5-heptyl-2-[4-(nonyloxy)phenyl]-, mixt. contg. (9CI)
CN Pyrimidine, 5-heptyl-2-[4-(octyloxy)phenyl]-, mixt. contg. (9CI)
CN Pyrimidine, 5-octyl-2-[4-(octyloxy)phenyl]-, mixt. contg. (9CI)
FS STEREOSEARCH
MF C28 H44 N2 O . C26 H40 N2 O . C26 H40 N2 O . C25 H38 N2 O . C25 H38 N2 O . C24 H36 N2 O . C22 H30 O4
CI MXS
SR CA
LC STN Files: CA, CAPLUS

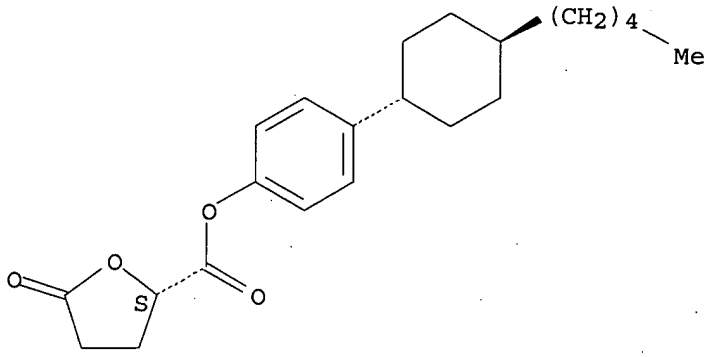
Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	1 in CM 1 1 in CM 2 1 in CM 3 1 in CM 4 1 in CM 5 1 in CM 6 1 in CM 7
C4N2	NCNC3	6	C4N2	46.195.39	1 in CM 2 1 in CM 3 1 in CM 4 1 in CM 5 1 in CM 6 1 in CM 7
C4O	OC4	5	C4O	16.138.1	1 in CM 1
C6	C6	6	C6	46.150.1	1 in CM 1

CM 1

CRN 145701-39-9
CMF C22 H30 O4

Absolute stereochemistry.



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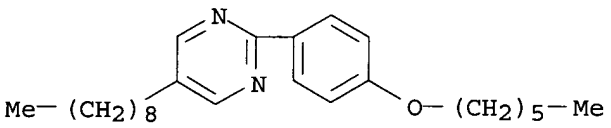
CRN 57202-56-9
CMF C25 H38 N2 O



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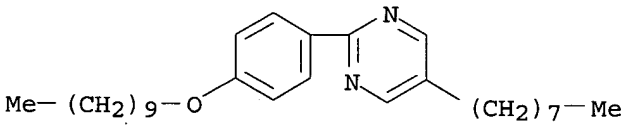
CRN 57202-52-5
CMF C28 H44 N2 O



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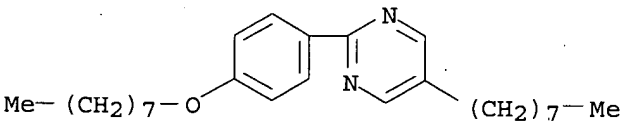
CRN 57202-50-3
CMF C26 H40 N2 O



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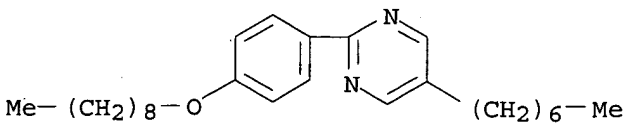
CRN 57202-40-1
CMF C26 H40 N2 O



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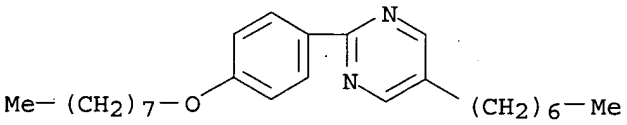
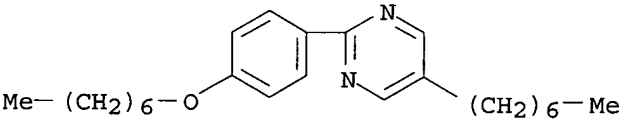
CRN 57202-39-8
CMF C25 H38 N2 O



CM 7

CRN 57202-38-7
CMF C24 H36 N2 O



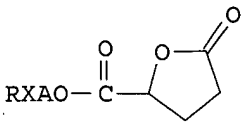
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 118:101791 CA
TI Preparation of optically active .gamma.-butyrolactone derivatives
IN Kamimura, Shigeo; Sakashita, Keiichi; Kageyama, Yoshitaka; Sako, Yoshihiro; Terada, Fumiko
PA Mitsubishi Rayon Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C07D307-33
ICS C07D405-12; C09K019-34; C09K019-42
CC 27-6 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 75
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 04193873	A2	19920713	JP 1990-324758	19901127
PRAI JP 1990-324758		19901127		

GI



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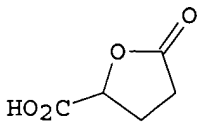

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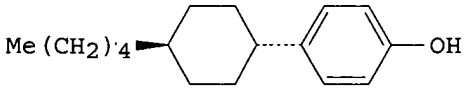

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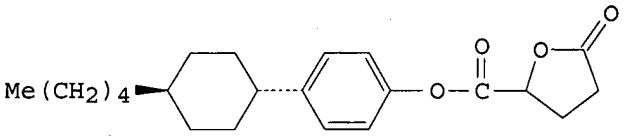


IV

AB The title compds. [I; R = C2-18 linear or branched alkyl, C2-18 linear or branched alkenyl, etc.; X = bond, O, CO2, O2C; A = (substituted) phenylene, biphenylylene, pyrimidinediyl, 1,4-cyclohexylene, etc.], useful as ferroelec. liq. crystal compns., are prepd. Reflaxing 0.65 g (S)-II in SOCl2 gave the acid chloride, which was dissolved in C6H6 and stirred with a soln. of trans-III in pyridine at room temp. to give 0.8 g pure (S)-IV showing a cryst.-isotropic phase-transition temp. of 130.degree.. A ferroelec. liq. crystal compn. contg. 2 mol% (S)-IV was incorporated into a display element to show a fast optical response time.

ST liq crystal compn chiral butyrolacetonecarboxylate

IT Liquid crystals
(optically active .gamma.-butyrolactone carboxylate derivs.)

IT 21461-84-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, with (pentylcyclohexyl)phenol, in prepn. of liq. crystal compn.)

IT 82575-69-7, 4-(trans-4-Pentylcyclohexyl)phenol
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, with butyryllactonecarboxylic acid, in prepn. of liq. crystal compn.)

IT 145920-89-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(liq. crystal compn., for display)

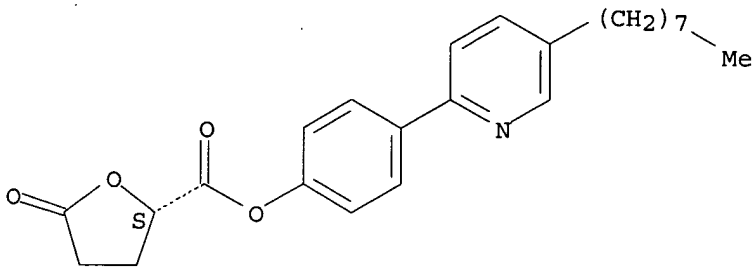
IT 145701-39-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as liq. crystal compn.)

RN 146575-78-2 REGISTRY
CN 2-Furancarboxylic acid, tetrahydro-5-oxo-, 4-(5-octyl-2-pyridinyl)phenyl ester, (S)- (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C24 H29 N O4
SR CA
LC STN Files: CA, CAPLUS

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C4O	OC4	5	C4O	16.138.1	1
C6	C6	6	C6	46.150.18	1
C5N	NC5	6	C5N	46.156.30	1

Absolute stereochemistry.



Calculated Properties (CALC)

PROPERTY (CODE)	VALUE	CONDITION	NOTE
Bioconc. Factor (BCF)	1	pH 1	(1) ACD
Bioconc. Factor (BCF)	294	pH 4	(1) ACD
Bioconc. Factor (BCF)	2312	pH 7	(1) ACD
Bioconc. Factor (BCF)	2327	pH 8	(1) ACD
Bioconc. Factor (BCF)	2328	pH 10	(1) ACD
Boiling Point (BP)	571.5+/-50.0 deg C	760.0 Torr	(1) ACD
Enthalpy of Vap. (HVAP)	85.70+/-3.0 kJ/mol		(1) ACD
Flash Point (FP)	299.4+/-54.2 deg C		(1) ACD
Freely Rotatable Bonds (FRB)	11		(1) ACD
H acceptors (HAC)	5		(1) ACD
H donors (HD)	0		(1) ACD
Koc (KOC)	2.19	pH 1	(1) ACD
Koc (KOC)	1129	pH 4	(1) ACD
Koc (KOC)	8880	pH 7	(1) ACD
Koc (KOC)	8936	pH 8	(1) ACD
Koc (KOC)	8942	pH 10	(1) ACD
logD (LOGD)	1.12	pH 1	(1) ACD
logD (LOGD)	3.83	pH 4	(1) ACD
logD (LOGD)	4.73	pH 7	(1) ACD
logD (LOGD)	4.73	pH 8	(1) ACD
logD (LOGD)	4.73	pH 10	(1) ACD
logP (LOGP)	4.734+/-0.386		(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 1	(1) ACD

Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 4	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 7	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 8	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 10	(1) ACD
Molecular Weight (MW)	395.49		(1) ACD
pKa (PKA)	4.84+/-0.20	Most Basic	(1) ACD
Vapor Pressure (VP)	4.51E-13 Torr	25.0 deg C	(1) ACD

(1) Calculated using Advanced Chemistry Development (ACD) Software Solaris V4.76 ((C) 1994-2003 ACD)

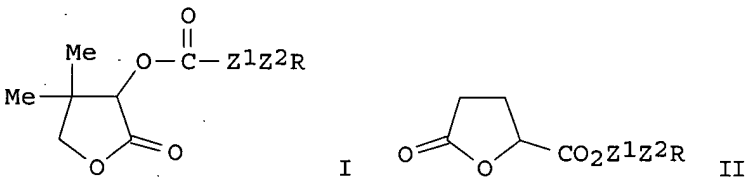
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 118:147448 CA
TI Preparation of .gamma.-butyrolactone derivatives as liquid and crystal compositions
IN Tsuchiya, Kazuhiko; Sugiura, Atsushi; Suzuki, Kenji; Fujii, Tsunenori
PA Kanto Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C07D307-33
ICS C07D405-12; C07D405-14; C07D407-12; C07D407-14; C09K019-34; C09K019-42
CC 27-6 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04208277	A2	19920729	JP 1990-330451	19901130
PRAI	JP 1990-330451	19901130			

GI



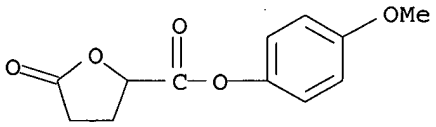
AB .gamma.-Butyrolactone derivs. [I, II; R = C1-16 linear or branched alkyl or alkoxy; Z1, Z2 = (F-substituted) p-phenylene, 1,4-cyclohexylene, 1,4-pyrimidinediyl, 2,5-pyridinediyl, etc.] are prepd. A mixt. of 4-(dimethylamino)pyridine, 4-(octyloxy)biphenyl-4'-carboxylic acid, and (R)-(-)-3,3-dimethyl-2-hydroxy-.gamma.-butyrolactone was added to a soln. of DCC in CH2Cl2 with stirring at room temp. to give 52.4% (R)-I (R = octyloxy, Z1 = Z2 = p-phenylene) of 99.0% purity. Two liq. crystal display devices contg. I showed good response time, spontaneous polarization, and tilt angle.
ST butyrolactone prepn liq crystal compn
IT Liquid crystals
(.gamma.-butyrolactone derivs.)
IT 21461-84-7 58415-63-7, 4-(5-Octylpyrimidin-2-yl)phenol 59748-18-4, 4-Octyloxybiphenyl-4'-carboxylic acid 83626-36-2 88196-69-4 110500-54-4 118350-46-2 131951-45-6 146575-69-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, in prepn. of liq. crystal compn.)

IT 129615-58-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(liq. crystal compn. contg.)
IT 146575-70-4P 146575-71-5P 146575-72-6P 146575-73-7P 146575-74-8P
146575-75-9P 146575-76-0P 146575-77-1P 146575-78-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as liq. crystal compn.)

RN 400878-85-5 REGISTRY
CN 2-Furancarboxylic acid, tetrahydro-5-oxo-, 4-methoxyphenyl ester (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C12 H12 O5
SR Chemical Library

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C4O	OC4	5	C4O	16.138.1	1
C6	C6	6	C6	46.150.18	1



Calculated Properties (CALC)

PROPERTY (CODE)	VALUE	CONDITION	NOTE
Bioconc. Factor (BCF)	1	pH 1	(1) ACD
Bioconc. Factor (BCF)	1	pH 4	(1) ACD
Bioconc. Factor (BCF)	1	pH 7	(1) ACD
Bioconc. Factor (BCF)	1	pH 8	(1) ACD
Bioconc. Factor (BCF)	1	pH 10	(1) ACD
Boiling Point (BP)	425.9+/-40.0 deg C	760.0 Torr	(1) ACD
Enthalpy of Vap. (HVAP)	68.07+/-3.0 kJ/mol		(1) ACD
Flash Point (FP)	193.1+/-49.3 deg C		(1) ACD
Freely Rotatable Bonds (FRB)	4		(1) ACD
H acceptors (HAC)	5		(1) ACD
H donors (HD)	0		(1) ACD
Koc (KOC)	25.9	pH 1	(1) ACD
Koc (KOC)	25.9	pH 4	(1) ACD
Koc (KOC)	25.9	pH 7	(1) ACD
Koc (KOC)	25.9	pH 8	(1) ACD
Koc (KOC)	25.9	pH 10	(1) ACD
logD (LOGD)	0.07	pH 1	(1) ACD
logD (LOGD)	0.07	pH 4	(1) ACD
logD (LOGD)	0.07	pH 7	(1) ACD
logD (LOGD)	0.07	pH 8	(1) ACD
logD (LOGD)	0.07	pH 10	(1) ACD
logP (LOGP)	0.067+/-0.344		(1) ACD
Molar Solubility (SLB.MOL)	>=0.01 - <0.1 mol/L	pH 1	(1) ACD
Molar Solubility (SLB.MOL)	>=0.01 - <0.1 mol/L	pH 4	(1) ACD
Molar Solubility (SLB.MOL)	>=0.01 - <0.1 mol/L	pH 7	(1) ACD
Molar Solubility (SLB.MOL)	>=0.01 - <0.1 mol/L	pH 8	(1) ACD
Molar Solubility (SLB.MOL)	>=0.01 - <0.1 mol/L	pH 10	(1) ACD
Molecular Weight (MW)	236.22		(1) ACD
Vapor Pressure (VP)	1.84E-07 Torr	25.0 deg C	(1) ACD

(1) Calculated using Advanced Chemistry Development (ACD) Software Solaris

V4.76 ((C) 1994-2003 ACD)

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=> d his

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     FILE 'REGISTRY' ENTERED AT 17:41:03 ON 02 DEC 2003
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L2             21 S L1
L3                STRUCTURE UPLOADED
L4              2 S L3
L5             41 S L3 FUL
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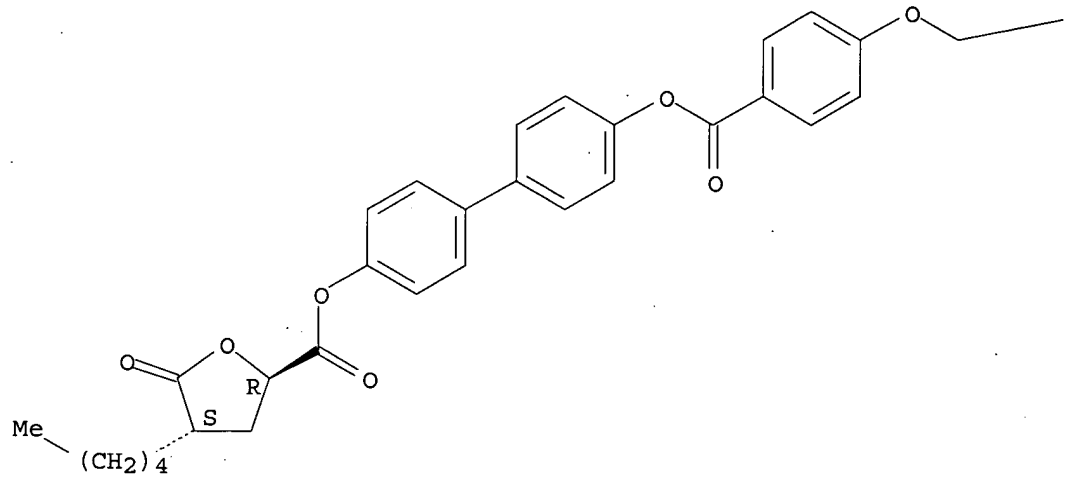
RN 166439-74-3 REGISTRY
CN 2-Furancarboxylic acid, tetrahydro-5-oxo-4-pentyl-, 4'-[[4-[(2,2,3,3,4,4-hexafluoro-5-methoxypentyl)oxy]benzoyl]oxy][1,1'-biphenyl]-4-yl ester, trans- (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C35 H34 F6 O8
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C4O	OC4	5	C4O	16.138.1	1
C6	C6	6	C6	46.150.18	3

Relative stereochemistry.

PAGE 1-A



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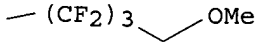

Calculated Properties (CALC)

PROPERTY (CODE)	VALUE	CONDITION	NOTE
Bioconc. Factor (BCF)	2259290	pH 1	(1) ACD
Bioconc. Factor (BCF)	2259290	pH 4	(1) ACD
Bioconc. Factor (BCF)	2259290	pH 7	(1) ACD
Bioconc. Factor (BCF)	2259290	pH 8	(1) ACD
Bioconc. Factor (BCF)	2259290	pH 10	(1) ACD
Boiling Point (BP)	737.8+/-60.0 deg C	760.0 Torr	(1) ACD
Enthalpy of Vap. (HVAP)	107.63+/-3.0 kJ/mol		(1) ACD
Flash Point (FP)	384.8+/-50.0 deg C		(1) ACD

Freely Rotatable Bonds (FRB)	18		(1) ACD
H acceptors (HAC)	8		(1) ACD
H donors (HD)	0		(1) ACD
Koc (KOC)	1229526	pH 1	(1) ACD
Koc (KOC)	1229526	pH 4	(1) ACD
Koc (KOC)	1229526	pH 7	(1) ACD
Koc (KOC)	1229526	pH 8	(1) ACD
Koc (KOC)	1229526	pH 10	(1) ACD
logD (LOGD)	8.66	pH 1	(1) ACD
logD (LOGD)	8.66	pH 4	(1) ACD
logD (LOGD)	8.66	pH 7	(1) ACD
logD (LOGD)	8.66	pH 8	(1) ACD
logD (LOGD)	8.66	pH 10	(1) ACD
logP (LOGP)	8.663+/-0.871		(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 1	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 4	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 7	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 8	(1) ACD
Molar Solubility (SLB.MOL)	<0.01 mol/L	pH 10	(1) ACD
Molecular Weight (MW)	696.63		(1) ACD
Vapor Pressure (VP)	1.24E-21 Torr	25.0 deg C	(1) ACD

(1) Calculated using Advanced Chemistry Development (ACD) Software Solaris V4.76 ((C) 1994-2003 ACD)

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 123:127788 CA
TI Mesomorphic compound, liquid crystal composition containing the compound, liquid crystal device using the composition, liquid crystal apparatus and display method.
IN Shinichi, Nakamura; Takao, Takiguchi; Takashi, Iwaki; Takeshi, Togano; Yoko, Kosaka
PA Canon K. K., Japan
SO Eur. Pat. Appl., 84 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C09K019-34
ICS C09K019-12; C09K019-14; C09K019-32; C09K019-20; C09K019-04; C09K019-46; C07D239-26; C07D213-30; C07D319-06; C07C069-76
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 640676	A1	19950301	EP 1994-113508	19940830
	EP 640676	B1	19990120		
	R: CH, DE, ES, FR, GB, IT, LI, NL, SE				
	JP 07097354	A2	19950411	JP 1993-237215	19930831
	JP 3230024	B2	20011119		
	JP 07133244	A2	19950523	JP 1993-243580	19930906
	JP 3216752	B2	20011009		
	US 5653913	A	19970805	US 1996-628446	19960405
PRAI	JP 1993-237215	19930831			
	JP 1993-243580	19930906			
	US 1994-297840	19940830			

AB A mesomorphic compd. CmH2m+1O(CH2)n(CH2)p(CH2)q-Y1-A1-R1 [R1 = H, halogen, CN, or a linear, branched or cyclized alkyl group having 1-30 C atoms capable of including at least one -CH2- group which can be replaced with

-0-, -S-, -CO-, -CH(Cl)-, -CH(CN)-, -CCH3(CN)-, -CH:CH- or -C.tplbond.C- provided that heteroatoms are not adjacent to each other and capable of including at least one H which can be replaced with F; m, n, p and q = 1-16 provided that m + n + p + q .ltoreq. 18; Y1 denotes a single bond, -O-, -CO-, -COO-, -OCO-, -CH:CH or -C.tplbond.C-; A1 = -A2-, -A2-X1-A3- or -A2-X1-A3-X2-A4 in which A2, A3 and A4 independently denote a divalent cyclic group; X1, X2 = a single bond, -COO-, -OCO-, -CH2O-, -OCH2-, -CH2CH2-, -CH:CH- or -C.tplbond.C-] having .gtoreq.2 ether groups between alkylene groups in a specific alkoxy perfluoroalkyl terminal group is suitable as a component for a liq. crystal compn. providing improved response characteristics and a high contrast. A liq. crystal device is constituted by disposing the liq. crystal compn. between a pair of substrates. The liq. crystal device is used as a display panel constituting a liq. crystal app. providing good display characteristics.

ST mesomorphic liq crystal device display; perfluoroalkyl mesomorphic compd

IT Liquid crystals
(perfluoroalkyl mesomorphic compd.)

IT Optical imaging devices
(electrooptical liq.-crystal, perfluoroalkyl mesomorphic compd.)

IT 166439-30-1 166439-31-2 166439-32-3 166439-33-4 166439-34-5
166439-35-6 166439-36-7 166439-37-8 166439-38-9 166439-39-0
166439-40-3 166439-41-4 166439-42-5 166439-43-6 166439-44-7
166439-45-8 166439-46-9 166439-47-0 166439-48-1 166439-49-2
166439-50-5 166439-51-6 166439-52-7 166439-53-8 166439-54-9
166439-55-0 166439-56-1 166439-57-2 166439-58-3 166439-59-4
166439-60-7 166439-61-8 166439-62-9 166439-63-0 166439-64-1
166439-65-2 166439-66-3 166439-67-4 166439-68-5 166439-69-6
166439-70-9 166439-71-0 166439-72-1 166439-73-2 166439-74-3
166439-75-4 166439-76-5 166439-77-6 166439-78-7 166439-79-8
166439-80-1 166439-81-2 166439-82-3 166439-83-4 166439-84-5
166439-85-6 166439-86-7 166439-87-8 166439-88-9 166439-89-0
166439-90-3 166439-91-4 166439-92-5 166439-93-6 166439-94-7
166439-95-8 166439-96-9 166439-97-0
RL: MOA (Modifier or additive use); USES (Uses)
(perfluoroalkyl mesomorphic compd. for liq. crystal compn.)

IT 166398-09-0P 166439-21-0P 166439-22-1P 166439-23-2P 166439-24-3P
166439-25-4P 166439-26-5P 166439-27-6P 166439-28-7P 166439-29-8P
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(perfluoroalkyl mesomorphic compd. for liq. crystal compn.)

IT 166397-72-4P 166439-98-1P 166439-99-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(perfluoroalkyl mesomorphic compd. for liq. cry